

an integral part of the HAI Model.”⁸⁶

“The time spent by the engineer and his/her Right of Way Agent, or Right of Way Engineer are imbedded [sic] in the loaded hourly rate for an engineer. Since the ratio of Right of Way Agents, or Right of Way Engineers is about 10 to 1, the percent of the hourly cost is about 10%. There are no specific ROW costs (in dollars) other than the imbedded [sic] engineering cost.”⁸⁷

MCIWorldCom claims that since ILECs have both interoffice facilities and loop facilities throughout the local exchange area, ILEC costs would be reduced because a portion of those facilities would be shared, reducing the cost of structure for both loop and transport.⁸⁸ However, Mr. Bryant acknowledges that CAPS are offering broader ranges of service which include service between customer locations.⁸⁹ Furthermore, Mr. Bryant states:

“Certain competitive carriers, including AT&T and MCIWorldCom, have constructed fiber optic transport facilities in a number of cities, connecting a number of locations within the local exchange either to their long distance switch, or increasingly to their local exchange switch.”⁹⁰

The scenario Mr. Bryant has described for competitive carriers such as AT&T and MCIWorldCom, sounds much like the scenario he describes for the ILECs. Therefore, these competitive carriers costs would be subject to the cost reductions to which Mr. Bryant refers. This conclusion is further confirmed by the testimony of AT&T/MCI witness, Dean

⁸⁶See AT&T's Responses to GTE's Third Set of Data requests, Missouri Docket no. TO-98-329, 8/31/98, Request no. 62.

⁸⁷*Id.*

⁸⁸Bryant Declaration at ¶ 20.

⁸⁹*Id.* at ¶ 14.

⁹⁰*Id.*

Fassett, filed on October 24, 1997:

“Currently, there is a major project is [sic] under construction between New York City and Cleveland, Ohio in which five innerducts are being plowed in at the same time so that the facilities can be shared between multiple providers.”⁹¹

AT&T's allegations are also inconsistent with what is occurring in the industry today. CLECs are actively pursuing rights-of-way agreements with telecommunications providers and other utilities. The following examples clearly demonstrate that CLECs and CAPs are successfully obtaining rights-of-way access around the country.

- ▶ Metromedia Network Inc. plans to build a new metropolitan-wide network in San Francisco and stretching into the Silicon Valley. Metromedia recently signed a right-of-way agreement with the Bay Area Rapid Transit System making the build possible.⁹²
- ▶ Phone Michigan has negotiated right-of-way conditions for planned expansion into Port Huron thereby covering 12 central office areas served by Ameritech and GTE. The Michigan PSC gave Phone Michigan permission to expand into more than 140 local-exchange areas statewide.⁹³
- ▶ Level 3 Communications Inc. has recently negotiated with Union Pacific Railroad to build portions of its national fiber-optic network along 7,800 miles of U.P. right-of-way.⁹⁴
- ▶ For the second time in a approximately one year, ICG Communications Inc. struck a deal with electric utility Southern Company to build a local-service network. ICG planned to build a

⁹¹See *Testimony of Dean R. Fassett on Behalf of AT&T Communications of the Midwest, Inc. and MCIMetro Access Transmission Services, Inc.*, Docket No. P-999/M-97-909, dated October 24, 1997.

⁹²<http://www.clec.com/latest/ClecNEwsSearch.cfm>, keyword right-of-way, *Metromedia announces San Francisco expansion*, dated July 16, 1998 .

⁹³*Id.*, at *Phone Michigan details expansion plans*, dated September 15, 1997.

⁹⁴<http://www.clec.com/latest/ClecNEwsSearch.cfm>, “*Level 3 plans network build along U.P. rail lines*,” April 2, 1998 .

100-mile, fiber-optic system along Southern's electric right of ways in Atlanta.⁹⁵

- ▶ Qwest has plans to lease right of way access along Amtrak's line linking New York and Washington D.C. Qwest's plans include using an existing conduit beneath the tracks to deploy its own fiber optics.⁹⁶
- ▶ "To gain quick entry into new markets, RCN is doing joint ventures with Boston Edison in Boston and Potomac Electric in DC. RCN then strings its fiberoptic cable on the top rung (where the electric power lines go) or in underground electric conduits."⁹⁷

IV. There Are Viable Loop Alternatives

A. Rights-Of Way Costs Are Not Prohibitive

AT&T devoted several pages of comments to the problems that TCG had in obtaining right-of-way in Dearborn, MI. prior to the passage of the Telecom Act.⁹⁸ It is important to note that while the TCG-Dearborn saga is unique. In fact, AT&T Outside Plant witness Dean Fassett has argued that claims of excessive right-of-way costs are "ridiculous and totally unsupported"⁹⁹ stating "I, as well as other members of the [HAI] engineering team have been associated with or directly responsible for the planning, authorization, design and installation of literally hundreds of DLC sites and believe that the site costs for

⁹⁵*Id.* "ICG strikes second deal with electric company," June 11, 1997.

⁹⁶*Id.* "Qwest leases Amtrak right of way access in Northeast," May 28, 1997.

⁹⁷RCN Website, <http://rcn.com/investor/news/12.29.97.html>.

⁹⁸Beans, Harris, Stith Affidavit at ¶¶ 11-20.

⁹⁹*Rebuttal Testimony of Dean R. Fassett on Behalf of AT&T Communications of the Midwest, Inc. and MCIMetro Access Transmission Services, Inc.*, In the Matter of the State of Minnesota's Possible Election to Conduct It's Own Forward-Looking Economic Cost Study to Determine the Appropriate Level of Universal Service Support, PUC Docket Nos. P-999/M-909, OAH Docket No. 12-2500-11342-2, (January 23, 1998) at 12.

DLC terminal[s] in the Hatfield Model is a good representation of typical site costs."¹⁰⁰ The default Remote Terminal Site and Power investment in HAI Model sponsored by AT&T and MCIWorldCom is a mere \$3,000.¹⁰¹ Similarly, when queried about right-of-way costs for loop and transport facilities, AT&T responded as follows to a GTE data request in the Minnesota Docket:

"The HAI Model assumes that it will not be necessary to build facilities on private property other than to serve the telephone requirements of the owner of the private property involved, in which case there is no purchase or lease involved[.]" and "both telephone and local electric service use the public right of way without purchase or lease to provide their service."¹⁰²

One stated purpose of the HAI Model sponsored by AT&T and MCIWorldCom is estimating the forward-looking economic costs of Unbundled Network Elements (UNEs).¹⁰³ It is difficult to understand how these companies can assert on the one hand that right-of-way requires little or no expense or investment, and on the other hand state that the costs associated with the right-of way process are significant and prohibitive.

B. Fixed-Wireless Technology Is A Viable Loop Alternative

AT&T also contends that "fixed wireless" technology is not a practical or realistic alternative to ILEC loop UNEs.¹⁰⁴ Nevertheless, they also admit that WinStar and Teligent

¹⁰⁰*Id.*

¹⁰¹HAI Model Release 5.0a Inputs Portfolio, January 27, 1998, Section 3.5.1.

¹⁰²AT&T's Responses to GTE's Third Set of Data Requests, Missouri Docket No. TO-98-329, November 23, 1998, Request No. 132.

¹⁰³HAI Model Release 5.0a Model Description, February 2, 1998, Section 1.1.

¹⁰⁴AT&T Comments at 62 and 67.

do provide such services and that AT&T will roll out its own fixed wireless service.¹⁰⁵ In fact, Teligent is providing service in 28 markets, which comprise 464 cities and towns, with a combined population of more than 83 million.¹⁰⁶ WinStar is operating in 14 cities in the top 100 MSAs.¹⁰⁷ Coincidentally, AT&T's Liberty Media arm announced on Tuesday, June 1, 1999, that it is purchasing the Associated Group which owns a 41% stake in Teligent for \$2.8 billion in stock plus the assumption of \$187 million in debt.¹⁰⁸ In contrast to AT&T's statement that "fixed wireless constitutes a minuscule portion of total traffic volumes in the United States and will not capture a meaningful market share any time in the foreseeable future,"¹⁰⁹ a recent Wall Street Journal article states that "Many analysts believe wireless broadband, or high-capacity, systems will grow quickly" with one analyst predicting over three million users by 2004.¹¹⁰ This acquisition is clearly inconsistent with AT&T's comments.

AT&T also claims that access to wireline local loops will be required because fixed wireless only supports "up to four voice lines and a 128 to 256 Kbps Internet connection."¹¹¹ According to service descriptions on Teligent's web site, "For business

¹⁰⁵*Id.* at 69.

¹⁰⁶Teligent Website, <http://www.teligent.com/templates/temp>, June 10, 1999.

¹⁰⁷NECI at 40.

¹⁰⁸'Fixed Wireless' Is Attracting Big Investments, Wall Street Journal, June 3, 1999 at B4.

¹⁰⁹AT&T Comments at 69.

¹¹⁰'Fixed Wireless' Is Attracting Big Investments, Wall Street Journal, June 3, 1999 at B4.

¹¹¹*Id.* at 70.

customers requiring high-speed access, Teligent offers high quality, highly reliable bandwidth options ranging from 64K to a full T-1."¹¹² Similarly, in a May 11, 1999, press release, Winstar announced its OC-3 (155 Mbs) point-to-point service which will deliver ATM, SONET and Fast Ethernet traffic to its customers.¹¹³

C. ILECs Should Not Be Required To Construct New Loop Facilities Solely For The Use Of CLECs

AT&T has asked the Commission for a "clarification" that would force the ILECs to construct new loop facilities to serve new construction occupied by AT&T customers who have not requested ILEC services, citing "serious competitive disadvantages in attempting to serve such customers."¹¹⁴ In making this request, AT&T ignores the fact that real estate developers handling office complexes, multiple dwelling units and in some cases entire communities, routinely go out to bid for telecom services, entering into preferred provider agreements with the winning bidder. (The bids often include a "package" of telecom, CATV, alarm and Internet access services.) GTE frequently has lost out to CLECs in such competitions.¹¹⁵ For example, last July, ICG Communications, Inc. and Olen Properties inked a deal making ICG the preferred telecom provider in Olen's Spectrum Pointe business Park in Irvine, CA. The arrangement gave ICG access to potential local, long-

¹¹²Teligent Website, http://www.teligent.com/services_internet.asp.

¹¹³WinStar Website, <http://www.winstar.com/PressRelease/511oc3.htm>.

¹¹⁴AT&T Comments at 83.

¹¹⁵GTE Comment at fn38.

distance and Internet access customers in 25 buildings in the park.¹¹⁶ AT&T's request is therefore unsupportable given that ILECs have no inherent advantage over the CLECs in these competitions.

AT&T's argument also ignores the fact that, in general, CLECs will not have to build structure (poles, conduits, etc.) to provide their own facilities to their customer's new locations. Because access to existing pole, duct, conduit, or existing communications utility right-of-way is mandated by the Act,¹¹⁷ structure is available from the CLEC switch to the private property line at a nominal cost. According to documentation supporting the structure sharing assumptions used by AT&T and MCIWorldCom in the HAI Model, "builders typically not only prefer buried plant that is capable of accommodating multiple uses, but they usually dig the trenches at their own expense, and place power, telephone, and CATV cables in the trenches, if the utilities are willing to supply the materials. Thus, many buried structures are available to the LEC at no additional charge."¹¹⁸ Further, AT&T, through its recent TCI acquisition and upcoming MediaOne purchase, has access to right-of-way and facilities that pass by 60% of the households in the U.S.¹¹⁹ No single ILEC can claim that level of access.

¹¹⁶<http://www.clec.com/latest/ClecNewsSearch.cfm>, "ICG named preferred carrier at new California office complex, July 20, 1998

¹¹⁷47 USC 224(f)(1).

¹¹⁸HAI Model Release 5.0a Inputs Portfolio, January 27, 1998, Appendix B at 163.

¹¹⁹NECI at 36.

V. Operator Services And Directory Assistance

A. Third-Party Providers Do Not Provide Inferior Service

As indicated in GTE's comments, there are a number of viable companies supporting the CLEC market in all aspects of Operator Services and Directory Assistance.¹²⁰ Many of the initial Operator Services third-party providers were telecommunications companies, but the number of alternatives has expanded beyond telecommunications companies to include a new category of providers, who were not carriers. Companies in this new category of third-party providers include InTeleServ, Excell Agent Services, and Revcom.

Third-party service providers support the front end of the process with the actual provision of operator services as well as sourcing the information that is retrieved. Since the third-party service provider determines the database and data sources to be used, the discussion of the provision of Operator Services cannot be separated from the database that is used to provide the service. When CLECs evaluate their options for a service provider, they must also assess the quality of the data provided. CLECs, like the service providers, make their choices based on their individual business plan, cost, and service level objectives. Once they determine their needs, there are viable providers from which they can choose.

One of these providers is InTeleServ, a supplier of national directory assistance services for IXCs, CLECs, wireless and independent service providers. InTeleServ is a

¹²⁰NECI at 41.

privately held company that has experienced significant growth and has been profitable for the last three years. In business since 1994, InTeleServ is using a national DA database that is built using the primary data sources---the RBOCs, GTE, CLECs, and independent telephone companies. This database, provided by Listing Services Solutions, Inc. (LSSI), has direct feeds from these companies to keep the data current. It is supported with updates every 24 hours.¹²¹ Larry Butler, CEO of InTeleServ, recognizes, as does GTE, that the Telecommunications Act of 1996, made ILEC databases available to competitors. In discussing a strategy for DA, he makes the following statement. "At a minimum, IXC's should look for a provider that has the ability to...[u]tilize a national DA database sourced from records obtained daily from the LECs and updated daily [and d]eliver accurate business, residential, and government telephone numbers at least 92 percent of the time."¹²² (A 92 percent accuracy level is comparable to ILEC performance.)

Third-party OS/DA service providers continue to grow. On March 12, 1999, Excell Agent Services announced its selection as the third-party service provider for AT&T's new directory information service, AT&T-00-Info.¹²³ The release states: "Excell's call center locations will hire nearly 2,000 new employees during the next two months to meet the demands of AT&T's new service offering ... While specific numbers are confidential, AT&T expects substantial growth in call volumes associated with the service."¹²⁴

¹²¹<http://www.inteleserv.com>

¹²²"IXCs: *Don't Let DA Slip Away*," Phone+ Magazine, May 1999.

¹²³Excell Website, <http://www.excellagent.com>.

¹²⁴ *Id.*

In addition, Excell's Website has a section on Database Accuracy.¹²⁵ In this section, it discusses its commitment to data integrity. "Providing correct, accurate information is the foundation upon which Excell Agent Services is built. We know our clients and their customers demand an extremely accurate database. By constantly updating and verifying listings, we have been able to make our database one of the most accurate nationwide databases in the industry."¹²⁶ Excell supports this goal with a continuous process improvement plan and the use of "The Paisley Group, LTD, an independent auditor recognized as the leader in database accuracy and customer fulfillment auditing related to Directory Assistance."¹²⁷

In the proceeding at hand, AT&T has been most critical of service providers such as Excell who construct their data bases by scanning recently published telephone directories. Yet AT&T has just selected Excell for its new national directory information service. It appears that AT&T finds the methodology and service levels of Excell quite acceptable to award such a recent significant contract to Excell.

B. Customized Routing Is Available To CLECs

In both the AT&T and MCIWorldCom filings, there are a number of assertions that customized routing for Operator Services and Directory Assistance is not available. In the case of GTE, these assertions are false. Customized Routing is required only when local

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ *Id.*

switching is provided by the ILEC, that is, with UNE local switch ports and resale.¹²⁸ It is used to direct CLEC OS/DA traffic to the CLEC's preferred service provider. Traffic can be directed to a third-party service provider, the CLEC's own platform, or to the ILEC's platform with branding overlays.

Customized Routing uses capabilities in the switch to recognize the CLEC's OS/DA traffic and route it appropriately. Implementation of Customized Routing requires initial set-up work in the switches where service is requested. This work is a substitute for the CLEC having to program its own switch. Depending on volumes of demand for the service, Customized Routing could also trigger a requirement to add capacity.

GTE has implemented Customized Routing to support the delivery of CLEC traffic to third-party OS/DA providers or to the CLEC's own OS/DA platform. GTE also provides Customized Routing to CLECs who wish to use GTE's OS/DA services, with or without branding. This commitment to Customized Routing is documented in GTE's interconnection agreements with CLECs and is triggered by a Bona Fide Request from a CLEC. As part of this process, GTE also provides the CLEC with a listing of offices that have already been programmed for delivery of Customized Routing service. If a CLEC requests Customized Routing in an office that is not on the list, GTE will program the capability in the office. In those locations where there is not currently capacity to handle additional requirements, GTE works with the CLECs to make capacity available. Therefore, there is no foundation for AT&T and MCIWorldCom's assertions that

¹²⁸If the local switch UNE is not necessary, related demand for customized routing is not necessary. However, it would still be required for resale applications.

Customized Routing is not available.

C. Additional OS/DA Issues Raised By AT&T Are Unfounded

MCIWorldCom raises a number of additional issues regarding Operator Services/Directory Assistance platforms, interfaces and service in the Declaration of Stuart Miller. Mr. Miller describes why and how MCIWorldCom built their own OS/DA platform and current ILEC/CLEC problem areas. Mr. Miller makes a number of false claims regarding MCIWorldCom's platform and its interface with the ILECs. These false allegations are as follows:

1. The Availability Of DA Data

Mr. Miller fails to recognize that GTE makes its DA listings available for purchase in bulk under tariff.¹²⁹ In fact, MCIWorldCom was one of the first companies to purchase this data from GTE. (It is interesting that MCIWorldCom does not sell its DA data in bulk.) In his comments Mr. Miller also asserts that direct connections to ILECs' databases are needed.¹³⁰ His proposed architecture is totally incorrect. What is needed is access to the *data*, not to the database. National DA databases, such as those used by many third-party service providers, or developed by companies such as LSSI, efficiently provide this capability. An analogy for this type of data retrieval is credit card validation. Retailers do not demand access to each bank's database to get information. Rather, efficiently designed national databases provide the information.

¹²⁹MCIWorldCom Comments, *Declaration of Stuart H. Miller*, at ¶5. (referred to hereafter as Miller Declaration).

¹³⁰*Id.* at ¶6.

2. CLEC/ILEC Interfaces Conform To Industry Standards

GTE builds its OS/DA systems and interfaces in compliance with industry standards. These include LSSGR and OSSGR. As a result of this, networks and systems interface in defined and predictable ways that assure efficient delivery of quality service. Mr. Miller fails to recognize this capability in his assessment of interfaces between networks. He indicates that CLECs must upgrade or change systems as ILECs change systems.¹³¹ This is not the case when upgrades are performed, as GTE and the ILECs support, in compliance with standards. GTE conforms with SR-TSV-00275 for the underlying signaling protocol in its switches. This is not “an outdated protocol that is inconsistent with new technology.”¹³² Rather, GTE and ILEC adherence to industry standards is what has permitted efficient growth in the telecommunications market as opposed to Mr. Miller’s request for use of the non-standard Feature Group D.¹³³

Mr. Miller clearly does not acknowledge how new services and advanced capabilities are developed by CLECs and third-party service providers. He indicates that CLECs are “held hostage to the ILEC developing the same functionality.”¹³⁴ Mr. Miller is misrepresenting the service development process. If a provider wishes to add new functionality to a current DA service, there are a number of options that are independent of the data. For example, if a provider adds directions to a telephone number, the

¹³¹*Id.* at ¶7.

¹³²*Id.* at ¶16.

¹³³*Id.* at ¶17.

¹³⁴*Id.* at ¶7.

telephone number is obtained and the new capability overlayed. New capability can be developed with Intelligent Network capabilities, programmable switches, or the service provider's own platform. Third-party service providers continue to announce new capabilities, all developed on their own rather than by the ILEC.

Mr. Miller discusses the cost to MCIWorldCom to implement its platform as follows; "The cost of implementing a single new DA platform can be \$10 million or more. If there are three or four different ILEC systems, a national CLEC like MCIWorldCom would be forced to spend tens of millions of dollars to integrate those systems. In addition, training operators and maintaining multiple systems can cost several hundred thousand dollars each month."¹³⁵ It appears that MCIWorldCom prefers to deploy multiple systems at significant cost rather than use readily available gateway technology, such as that provided by IBM. For significantly under \$1 million, a CLEC with its own platform can efficiently access and manage multiple data sources. Third-party service providers use gateway technology. GTE also uses a gateway architecture for its National DA service.

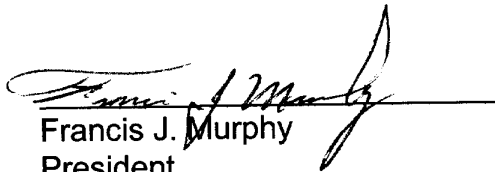
In summary MCIWorldCom, AT&T and other commenters fail to accurately portray GTE's demonstrated commitment to the availability of quality data and the implementation of Customized Routing. Likewise, MCIWorldCom's Stuart Miller fails to understand how today's state-of-the-art operator platforms efficiently support interfaces across networks and databases, when they are deployed in compliance with standards as GTE and the ILECs do. The real proof of GTE and ILEC support to the CLEC market is demonstrated

¹³⁵*Id.* at ¶8.

by the continued growth and expansion of third-party OS/DA service providers who are meeting customer needs.

I declare under penalty of perjury that the foregoing, which was prepared under my direction, is true and correct.

Executed on June 8, 1999


Francis J. Murphy
President

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
21st Century Telecom		X	X		
	Announces the purchase of privately held ISP EnterAct (2/18/99)				
Allegiance Telecom		X		X	
	Announces plans to offer DSL services (4/22/99)				
	Allegiance announces agreement with dark-fiber firm MetroMedia Fiber Networks that connects 14 COs in Dallas area (4/19/99)				
	Plans to offer 11.8 M shares with several underwriters to be used for network expansion (4/15/99)				
	Announces \$225 M seven-year revolving line of credit with several companies (4/05/99)				
AT&T		X	X	X	SS7/OS/DA
	Announces plans to market DSL services (4/27/99)				
	AT&T Broadband and Internet Services announces agreement to purchase 28,000 subscriber cable system from Cable Communications Cooperative (4/26/99)				
	AT&T announces \$58 B rival bid for MediaOne (4/22/99)				

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
AT&T (cont.)		X	X	X	SS7/OS/DA
	Covad announces plans to offer long-distance DSL using Qwest's and AT&T's ATM backbones (3/29/99)				
	Announces \$8 B bond offering (\$2 B in 5-year notes, \$3 B in 10-year notes and \$3 B in 30-year notes) to be used to pay for AT&T's recent \$4 B share repurchase and acquisition of TCI (3/23/99)				
	Announces 3-for-2 stock split effective 4/15; this is AT&T's first stock split in 35 years (3/17/99)				
	GCI announces agreement with AT&T to provide capacity along fiber-optic network to AT&T Alascom (2/16/99)				
	Announces joint venture with Time Warner to provide two-way services via Time Warner Cable's systems (2/01/99)				
	Announces the filing of a \$10 B shelf registration statement for the future sales of securities for investments and other capital needs (1/28/99)				
	Announces joint ventures with five TCI-affiliated cable firms (1/08/99)				

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
	Covad announces \$25 M investment from AT&T Ventures; also will supply AT&T with DSL services while AT&T will provide Covad with transport and collocation services (1/05/99)				
Birch Telecom		X		X	
	Announces purchase of Capital GBS Communications, a telecom and equipment services vendor (3/05/99)				
BTI		X		X	
	Announces five-year, \$20 M deal with EDS for billing and product management services (5/07/99)				
CapRock Communications		X		X	
	Announces \$210 M of 11.5% senior notes to fund network construction including \$20 M on southwestern network (5/20/99)				
	Offering of 4 M shares with several underwriters to be used for construction of fiber-optic facilities and voice and data switches (5/07/99)				
Covad					DSL
	Announces increase in secondary offering from 5 M shares to 7.5 M shares 95/20/99)	Covad provides DSL services.			

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
	TelePacific announces agreement with Covad to offer DSL services to business customers in CA and NV (5/11/99)				
Covad (cont.)					DSL
	Launches DSL services in San Diego through ISP partnerships with A+Net, Concentric Networks and Flashcom (5/05/99)	Covad provides DSL services.			
	Launches DSL services in Chicago through ISP partnerships with Concentric Networks, Flashcom and Internet Illinois (4/28/99)				
	Plans to offer 5 M shares in secondary offering; also Board has approved a three-for-two common share split for next month (4/23/99)				
	PSINet announces agreement with Covad allowing PSINet to launch DSL services (4/12/99)				
	Covad announces plans to offer long-distance DSL using Qwest's and AT&T's ATM backbones (3/29/99)				
	e.spire announces agreement with Covad allowing e.spire to launch DSL services (3/17/99)				

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
	Launches DSL services in Philadelphia through ISP partnerships with Concentric Networks, Voicenet and Wired Business (3/15/99)				
	Announces agreement to provide DSL services to Communication Corp. of America which will offer DSL connectivity through its ISP subsidiary, Netline Internet Solution (3/08/99)				
Covad (cont.)					DSL
	Announces plans to sell \$215 M of senior notes to pay for continued network deployment (2/12/99)	Covad provides DSL services.			
	Announces enlargement of DSL services footprint in Seattle through dozens of ISP partnerships (2/08/99)				
	Internet services firm IBS Interactive announces agreement with Covad allowing IBS to launch DSL services in the New York City area (1/29/99)				
	IPO today of 7.8 M shares/Bear Stearns & Co. is lead underwriter (1/22/99)				
	Covad announces a \$15 M strategic relationship/equity investment with Qwest; also Qwest will resell Covad's DSL services and allow Covad to route network traffic along Qwest's nationwide IP system (1/19/99)				

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
	Covad announces \$20 M strategic relationship/equity investment with NEXTLINK; also NEXTLINK will resell Covad's DSL services and will serve as Covad's preferred provider of local transport facilities and collocation services (1/05/99)				
	Covad announces \$25 M investment from AT&T Ventures; also will supply AT&T with DSL services while AT&T will provide Covad with transport and collocation services (1/05/99)				
Cox Communications		X	X	X	
	Announces agreement to purchase cable systems from 1 st Commonwealth Communications which will enable Cox to launch digital video, telephone and high-speed Internet access services throughout Virginia (3/01/99)				
e.spire		X	X	X	
	e.spire announces agreement with GST Telecommunications to provide capacity to GST along Houston-area fiber-optic network to introduce competitive services (4/22/99)				

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
	e.spire and Hyperion announce agreement that will allow Hyperion to expand into 14 additional markets using e.spire's fiber optics facilities and will allow e.spire access to capacity along Hyperion's South Florida network (4/15/99)				
	e.spire and internet services provider Quest Net Corp. announce agreement in which e.spire will sell PRIs to Quest Net so that Quest Net can increase its network bandwidth throughout the southeast (4/06/99)				
	e.spire and PictureVision announce agreement for e.spire to provide high-speed frame relay backbone services to allow PictureVision to move digital photos between Internet addresses (3/23/99)				
e.spire (cont.)		X	X	X	
	e.spire announces agreement with Covad allowing e.spire to launch DSL services (3/17/99)				
	Hyperion announces agreements with five companies, including e.spire and Metromedia Fiber Network, allowing it to use existing fiber-optic facilities (2/09/99)				
Electric Lightwave, Inc.		X	X	X	
	Completes a \$325 M offering of five-year notes (4/23/99)				

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
	Electric Lightwave announces a 20-year, \$178 million deal with IXC Communications to exchange capacity along their network infrastructures (4/12/99)				
	Announce agreement which lets Touch America offer private line services on Electric Lightwave's network and gives Electric Lightwave access to Touch America's systems in four states (3/30/99)				
FirstWorld				X	
	Announces agreement with Lucent to deploy Lucent's PathStar server as the backbone of its IP-based local-service networks which will allow FirstWorld to route both voice and data traffic along an ATM-based network and offer high-speed connectivity through DSL technology (4/15/99)				
FirstWorld (cont.)				X	
	Announces purchase of ISP, Sirius Solutions, for about \$7.5 M which grows FirstWorld's base of Internet customers (3/02/99)				
	Announces purchase of ISP, Slip.Net Inc., for nearly \$10.5 M (1/07/99)				
Florida Digital		X			

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
	Announces it has secured \$40 M in credit to be used for network expansion (4/22/99)				
Focal Communications		X		X	
	Focal announces agreement with Level 3 to get capacity on Level 3's facilities in seven markets (5/10/99)				
	Filed papers for planned IPO (5/07/99)				
	Focal and Linx announce agreement allowing Linx to collocate its switching systems at Focal network facilities; Linx plans to offer a nationwide Universal Number service (3/29/99)				
	Announces \$25 M in financing from NTFC Capital Corp. to finance switches and other telecom systems (1/05/99)				
Frontier Communications		X	X	X	SS7/OS/DA
	Global Crossing announces planned merger with RBOC US West; pending merger partner Frontier agrees with merger (5/17/99)				

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
	Announce agreement that gives Frontier the ability to market DSL services in several markets and provides NorthPoint with access to a national fiber-optic backbone; also includes a \$4.9 M investment in NorthPoint by Frontier (4/07/99)				
	Global Crossing announces plans to buy Frontier for \$11.2 B and combined company plans to place IP-telephony technology at heart of their international networks (3/17/99)				
GCI of Alaska		X		X	
	GCI announces agreement with AT&T to provide capacity along fiber-optic network to AT&T Alascom (2/16/99)				
GST Tele-communications		X	X	X	SS7
	GST announced the installation of an Avici Systems Terabit Switch/Router-brand platform; GST and Avici say this is the first time a true terabit-capable backbone has been installed along a live network (5/11/99)				
GST (cont.)		X	X	X	SS7

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
	e.spire announces agreement with GST Telecommunications to provide capacity to GST along Houston-area fiber-optic network to introduce competitive services (4/22/99)				
	GST announces expanded relationship with World Wide Fiber (formerly Pacific Fiber Link) to partner on a network segment buildout in CA and gives each access to portions of the other's network (4/15/99)				
	GST and Level 3 announce agreement to build a long-haul network segment linking San Diego to GST's existing fiber-optic backbone (3/30/99)				
	GST announces plans with NEXTLINK and Level 3 to construct a San Diego-area fiber-optic network (3/22/99)				
	GST and partner Pacific Fiber Link have added new partner, Williams Communications, to their 715-mile fiber-optic project linking Sacramento and Portland; Williams will pay \$47.2 M and will get access to network facilities along the system (1/12/99)				

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
Hyperion Communications		X	X	X	
	e.spire and Hyperion announce agreement that will allow Hyperion to expand into 14 additional markets using e.spire's fiber optics facilities and will allow e.spire access to capacity along Hyperion's South Florida network (4/15/99)				
	Entergy announces plans to sell joint-venture competitive local service operations to partner Hyperion for about \$36 M (4/05/99)				
	Announces \$300 M private offering of senior notes for network investments (2/26/99)				
	Hyperion announces agreement with Intermedia allowing Hyperion to offer frame-relay data services (2/10/99)				
	Hyperion announces agreements with five companies, including e.spire and MetroMedia Fiber Networks, allowing it to use existing fiber-optic facilities (2/09/99)				
	MetroMedia announces \$44 M agreements which provide Intermedia with access to MetroMedia network facilities in San Francisco and the Silicon Valley and provide Hyperion with dark-fiber capacity along MetroMedia's systems in New York, Chicago and Washington, D.C. (1/12/99)				

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
ICG Communications		X	X	X	SS7
	Announces deployment of Cisco packet-based switches which allow ICG to offer a variety of data-oriented services including frame relay, ATM and IP, as well as voice-over-IP calling (5/10/99)				
	ICG announces two-year agreement with NorthPoint and will invest \$10 M in NorthPoint (4/15/99)				
	Announce two-year agreement allowing ICG to expand its DSL footprint and designates NorthPoint as ICG's preferred DSL provider (2/18/99)				
	Announces completion of 214 city nationwide IP-telephony infrastructure (1/20/99)				
	ICG announces \$55 M buy out of Texas-based joint venture ChoiceCom from utility-firm partner Central And South West Corp. (1/04/99)				
Intermedia Communications, Inc.		X		X	
	Intermedia announces alliances with Rhythms and NorthPoint to expand DSL throughout much of country (4/28/99)				

CLEC	Financing/Partnering	Company Provides Own Facilities			
		Switch	Loop	Transport	Other
	Announces that its internet services subsidiary, DIGEX, has filed papers for planned IPO (4/28/99)				
Intermedia Communications, Inc. (cont.)		X		X	
	Hyperion announces agreement with Intermedia allowing Hyperion to offer frame-relay data services (2/10/99)				
	Announces private offerings of \$500 M in ten-year notes to fund the cost of general expansion (2/09/99)				
	MetroMedia announces \$44 M agreements which provide Intermedia with access to MetroMedia network facilities in San Francisco and the Silicon Valley and provide Hyperion with dark-fiber capacity along MetroMedia's systems in New York, Chicago and Washington, D.C. (1/12/99)				
ITC DeltaCom		X		X	
	Announces planned acquisition of networking services firm AvData Systems for about \$28 M (4/16/99)				
KMC Telecom Corp.		X	X	X	
	KMC announces five-year deal to provide MCI WorldCom with dedicated local-access services in 18 markets (5/05/99)				